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their effects in determining the range of those plants cultivated for food; and, at the same time to trace the character of the fundamental rocks over the whole of this region, pointing out the mode of occurrence of those ores and minerals useful in the arts; and, finally to trace the colonization of this region from its feeble beginnings to its present magnificent proportions, that this work was undertaken." The author does not confine the attention of the reader to the physical features of the Mississippi Valley alone, but carries him away over the Rocky Mountains down the Pacific slope, and up the Valley of the St. Lawrence, and devotes an entire chapter to the *llanos* and pampas of South America, and the steppes and deserts of Asia, Africa, and Australia. We have in this very readable volume the most recent and comprehensive account of the Great Valley of the West that has been published in a popular form. The chapters on the origin of prairies and the geological features of the region drained by the Mississippi are exceedingly interesting, and by their clear presentation of facts, with which the author has familiarized himself while engaged upon Government surveys and in private research, are well calculated to give the general reader a good idea of the formation of our continent, and the origin of the grand features which go very far in determining the physical and moral condition of the nations dwelling on its surface.

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## NATURAL HISTORY MISCELLANY.

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### BOTANY.

TABLE-MOUNTAIN PINE.—There seems to exist such a diversity of opinion among authors in regard to the geographical range of this tree (*Pinus pungens* Michaux), that we have thought a statement as to its distribution might not be amiss.

Michaux anticipated that it would be the first of our native trees to become extinct, because its limits were so narrow and its habitat so easy of access, and so frequently swept over by fire. Nuttall tells us "its range is so wide that we have no reason to fear its extirpation." Chapman finds it on the "mountains, rarely west of the Blue Ridge, Georgia to North Carolina, and northward." In 1859, Gray limited it to "Blue Ridge, Virginia, west of Charlottesville, and southward." In 1863, he adds, on the authority of Prof. Porter, "the mountains of Pennsylvania, etc." In 1867 the same author gives a new locality near Reading, Pa., which was discovered by Thomas Meehan.

Unless we take the above statement of Prof. Porter in a pretty wide light, we have in none of these limits assigned anything like an indication as to how common the tree is in Pennsylvania. Thus far I have found it ranging from the banks of the Juniata River, in Mission County,

Pa., to Penn's Valley, in Centre County, Pa. In the latter place it is extremely common, and often forms the largest portion of the woods. The trees, too, attain a height of fifty, and perhaps I may add, not seldom sixty feet.

Mr. Hoopes, in his "Book of Evergreens," has given an admirable representation of one of the *characteristic* cones. Here I would state that the strong spine which tips each scale is subject to a most remarkable variation in size; sometimes dwindling down until it is less than in *Pinus rigida*. I have even seen this variation, from the real typical spine to the dwarfed one, on well formed scales of the same cone. We may recognize the tree usually at a glance by the persistent whorls of large cones. — J. T. ROTHROCK.

VARIATION IN THE SARRACENIA. — Mr. Wm. H. Silsbee, of this city, has brought in from the woods in Beverly, a variety of *Sarracenia purpurea* Linn., which is worthy of notice. The modification is chiefly in color, though the size of the flower, judging from the specimen examined, is rather less than the average of the common kind. The deep purple usually seen is wholly wanting; the scape, sepals and stigma, being of a light apple green, while the petals have taken on a decided, though rather pale yellow. The leaves were not collected, and whether any change is found in them does not yet appear. This would seem a case of albinism, nearly parallel with that in *Aquilegia Canadensis* Linn., reported some years ago by Mr. G. D. Phippen, of Salem. It is an interesting question whether, in the case of deep-colored flowers like these, there is a tendency, when passing into the albino state, to stop the process at the yellow tints, as a sort of intermediate point, and not carry it forward to full whiteness. Farther observation is highly desirable; and we learn that Mr. Silsbee is acquainted with several spots where this variety of the *Sarracenia* is found. — C. M. TRACY.

DOUBLE EARLY SAXIFRAGE. — This beautiful variety of the *Saxifraga Virginensis* has been detected again by John H. Sears, in a new locality near Beverly Bridge. The panicle is smaller than in the normal form, but each flower is full-double to the very centre, the change obliterating every trace of stamen and pistil, and the blossoms remind one of those of the Queen of the Meadow (*Spiraea*), such as we see it in the gardens. — J. L. RUSSELL, *Salem*.

COREMA CONRADI (Torrey). — This plant, which occurs in Newfoundland and on some of the islands off the coast of Maine, also on Cape Cod, near Plymouth, was found many years ago at Cedar Bridge, Ocean County, N. J., by Prof. S. W. Conrad, of Philadelphia. It was carefully described by Dr. Torrey in 1837 (in the *Annals of the New York Lyceum of Natural History*, Vol. iv, p. 83) under the name of *Empetrum Conradi*, and its New Jersey localities accurately indicated. A visit to Cedar Bridge, made in April of this year by the writer and C. F. Parker, of Camden, N. J., showed that the plant has entirely disappeared from that locality. It is said to have been also found at Pemberton Mills, N. J.,

but from that point it has been banished by agricultural encroachments. There is therefore no evidence that this species now exists south of Cape Cod, though it is possible it may again be found in New Jersey, and if anywhere in that State, probably on the wide stretch of barren, sandy dunes, a few miles west of Cedar Bridge, locally known as "The Plains," extending along the border between Burlington and Ocean Counties. Long Island should also offer some favorable points for its occurrence. — J. H. REDFIELD, *Philadelphia*.

FRAGARIA GILLMANI. — In the NATURALIST (p. 221) Judge Clinton describes a new *Fragaria*, from Mexico. With specimens before me, it is clearly nothing but *Fragaria vesca* Linn. *F. vesca* is a very variable plant. It is found not only all over Europe but through the whole mountain range of the American continent to the south of Mexico, and probably beyond. The higher the range the greater is the tendency to a racemose, and an "everbearing" character. I have in my herbarium specimens collected even in the comparatively low elevation of the Alleghanies in Pennsylvania, that are not in the slightest degree different from this Mexican one.

It might not be amiss to describers of species to suggest that greater attention be given to natural variations. Great evil has resulted to Botany from attributing to Horticulture so many great changes that are really but the regular developments of natural law. I have given particular attention to the strawberry for over twenty years, and am sure that "hybridization and the gardener's skill" in the production of varieties are pure imagination. The gardener has preserved, but he has not originated variations. I have not had the opportunity of examining Schleachtendals' *S. Mexicana*, and some other of these so called species but from what I have gathered of the law of variation in *Fragaria*, and the direction of that law in the numerous forms of *Fragaria* that I have examined, I have little doubt that they are forms of one thing. Indeed, with the exception of *F. Indica*, there is every probability that all the species of strawberry are closely related forms of one another.

One law in strawberry development which has been of great service to me is that the "runner," or stolon, is but a modified "flower stalk," or peduncle, bearing along its course viviparous buds, instead of flowers. The grades between the forms of this one thing—that is, the vigorous runner and the floriferous scape—are beautifully illustrated by selecting the most floriferous forms (*F. semperflorens* of Duchesne), and the more vigorously running kinds (*F. Illinoensis* Gray). In *F. semperflorens* (*F. Gillmani* Clinton), the plant sometimes produces no stolons, but when it does *flowers will frequently come out at the nodes*, and the singular appearance is presented of a few single-flowered peduncles with a couple of leafy bracts, sending out roots as a living plant. When it does not produce stolons, the number of flower spikes is increased, and as they cannot "run," as a stolon, make up for this by continual axial production, bearing a succession of flowers through the whole season. By

watching a bed of seedlings from *F. Virginiana* it will be seen that there is a continual struggle going on in the *species* (regarding all the so called *Fragarias* as one species) as to the transformation of the runners into flowering shoots. Sometimes the runner "party" will so get the upper hand that the pistils will be entirely suppressed, in which case the runners push out with so much enthusiasm as to crowd down and frequently destroy their floriferous neighbors. In fact, just in proportion as the plant becomes truly fruit bearing, and with a tendency to produce a succession of fruit on the same stock, is the tendency to produce runners checked. But even this is subject to modification, for they may produce very short peduncles, although bearing full crops of fruit; they will in this case wait till the bearing is pretty well over and then run (Wilson's Albany), or they may produce a few long scapes, and bearing a heavy crop at once and done with it, then push out with great vigor in the running line (see New Jersey Scarlet).

The result of my observation of plants in a state of nature is, that every tribe or genus of plants has its own peculiar law of variation, that all minor variations form around this great central law, and that unless a describer of species is able to recognize this law, the time will come when he will be considered incompetent to perform his undertaking.

In describing *Fragarias* it will be seen that the law of variation centres in the effort to produce flower spikes out of stolons, therefore, *no character drawn from differing forms of stolons or flower-scapes can possibly serve to identify a species* in this genus.

I have thrown in these general views to excuse Judge Clinton, who, in making a new species out of an accidental variation in the cyme, has done no more than scores have done before him, and many more will in the future, without these considerations. With regard to the merits of this everbearing strawberry as a horticultural novelty I offer no opinion. The Alpine everbearing class of strawberries, however, are too much neglected. They are excellent things in the amateur's garden. There is no reason why they may not be an excellent improvement on others we have had. From the little I have seen of this "Mexican" I think it is. Therefore, though the public will not buy "a new species" they will get their money's worth as a garden fruit.\*—T. MEEHAN.

RARE MOSS.—Some rarer mosses have been detected here, of which mention may be made of *Buxbaumia aphylla* and *Tetraplodon australis*. —H. E. P., NORRON, MASS.

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\*Since the above was in type I have seen the plants at Detroit, and they confirm what is above written. It is a valuable improvement on all other alpine strawberries introduced to our fruit gardens, but not botanically distinct from the well known alpine form of *F. vesca*. It is, however, interesting from the fact that what I have termed the struggle between the viviparous and the florescent principles, is much more evenly balanced in this than in any other form I have seen. The flower scapes and runners are so blended in character, that at times either partakes largely of the conditions of the other.